

Appendix F

Current Technical Architecture



A. Introduction

The purpose of the Current Technical Architecture is to provide a baseline understanding of the Human Resources Information Services Division (HRISD) subsystems included within the Civil Service Reform/Collective Bargaining (CSR/CB) Feasibility Study, as well as the environment within which they are operated and supported. The included subsystems have been defined by HRISD as those Personnel, Leave, and Payroll subsystems that will be impacted by the business requirements to be implemented for the 03-05 Biennium by the CSR/CB implementation project.

The principal components of the Current Technical Architecture are listed below.

- Application Development Environment. The tools, methodologies, and skill sets utilized to develop and maintain the subsystems.
- Application Maintenance and Support. Existing arrangements for maintaining and supporting the subsystems.
- Hardware/Systems Software Architecture. The HRISD/DIS technical environment (hardware, software, networks) upon which the subsystems rely.
- Application Architecture. Subsystem specific information, i.e., functionality, integration points to other systems and organizations, transaction types and volumes, processing schedules, issues and limitations, and a risk assessment.

Information for this document was gathered in three ways:

- Examination of available documentation.
- Interviews with HRISD and DIS managers and staff.
- Review of previous studies of HRISD systems and capabilities.

Any information gathered from previous studies and/or documentation has been validated prior to being included in this document.

B. Application Development Environment

The application development environment at HRISD consists of the programming languages, database management systems, and development tools used to design and build

applications, as well as standards and methods and the technical skill sets used by HRISD staff to carry out projects. Also included in this section are a series of issues and opportunities which HRISD management has identified for improving its application development environment.

1. Programming Languages

a. Mainframe programming languages

- COBOL for OS/390 and VM 2.2.1
- DYL260/280 (migrating from DYL 260 to DYL 280)
- NATURAL 3.1
- CICS
- SAS
- FOCUS
- FSORT
- JCL
- ADAPREP (for COBOL access to ADABAS)

b. Client/server and web applications programming languages

- VBScript
- JavaScript
- Visual Basic 6.0
- HTML
- ASP 3.0
- SQL for MS SQL Server, ANSI-92 (for stored procedures)

2. Application Development Tools

a. Mainframe applications

- Endevor
- AbendAid
- FileAid

- BizTalk
- Comparex
- QABatch
- XPEDITOR
- Visio (for data modeling)

b. For client/server and web applications

- MS Access 97/2000/2002
- MS Excel 97/2000/2002
- MS FrontPage 2000/2002
- MS Visual Interdev 6.0 (MS Visual Studio)
- Erwin (for data modeling)
- MS SQL Enterprise Manager
- UltraEdit 8.20
- Visual Studio .NET (currently being piloted)

3. Data Management

a. Mainframe applications

(1) Architecture

- ADABAS 7.1.3. The production ADABAS files currently holds about 8.3 gigabytes of data, using 11,600 cylinders of disk space. Data base allocations have remained fairly constant over the past two years. Most historical data is not stored on the database. That data is found in tape datasets and in the data warehouse in various forms. The single exception to this is data related to insurance accounts and premium payments. However, with Health Care Authority (HCA) taking over operation of the insurance system, the HRISD database will be reduced by as much as 75%. Data storage costs are not expected to raise significant concerns under any technical solution that HRISD might consider for meeting the needs of CSR/CB.
- VSAM. Primary utilization is by legacy online systems inherited from prior systems: ACH Names, Staggered Pay, HRDIS.
- FOCUS.

- SAS. Databases used for intermediate data.
- Sequential. Tape and disk.

(2) Reporting tools

Data is downloaded from ADABAS to a set of FOCUS files. Using those files, users execute a set of pre-defined FOCUS queries to produce reports and files. These query and reporting programs are part of the HRISD Information Center subsystem.

b. Client/server and web applications

(1) Architecture

- Microsoft SQL Server 7.0.
- Microsoft SQL Server 2000.
- Oracle. Oracle is not currently supported by HRISD.

There are currently seven Microsoft SQL Server databases holding over 12 gigabytes of data. Most of this data is contained in the HR Data Warehouse which is composed of two of these files.

- HR Data Warehouse. Also referred to as the "Core" database. The Core database is a large repository for data extracted from the Personnel and Payroll systems. It is not meant for customer query; rather, it is the source of data for the data marts. Data is stored at a very detailed level. Growth is estimated at approximately 500Mb per year.
- Decision Support Data Mart. This database is available for customer query and is specifically designed to provide data for agency decision-support activities. The data is summarized for specific periods and also provided in the form of periodic "snapshots". Pre-calculated workforce statistics are available. This database is meant for customer agencies to query information regarding their own employees. Access is restricted. Growth is not expected. Data is deleted on a regular basis.

(2) Reporting tools

Data is downloaded from ADABAS to SQL Server Data Warehouse databases. Customer agencies use a variety of reporting tools (including Access, Brio, and others) to extract, analyze, and report this data.

4. Project Management

Since it was formed as a Division of the Department of Personnel (DOP) in 1975, the HRISD has undertaken numerous information system development and enhancement projects. To help improve its system development practices, HRISD has over the past six years developed standard methods and practices in the areas of project management and software development.

a. Project Management Methodology

In the fall of 2001, HRISD adopted a Project Management methodology based on the principles and practices contained in the Information Service Board's (ISB) Information Technology Project Management Policy combined with the principles and practices outlined in the Project Management Institute's Body of Knowledge (PMBOK). It includes processes for project initiation, planning, execution, control, and close-out. The methodology has been used to varying degrees on three significant projects since its adoption – PERS3, WSP Plan 2, and Insurance Decommission. Both the PERS3 and WSP Plan 2 projects experienced significant benefits from using the new project management methodology, including:

- Quick decisions and issue resolution.
- Early definition of roles.
- Smoother testing.
- Cleaner implementation.
- Reusable tools.

HRISD has also established a Project Management Office, staffed on a full-time basis by three project managers, a mainframe product architect, and a quality improvement/process architect.

b. Software Development Methodology

HRISD management and staff have just completed a draft of a preferred, high-level, phased approach to system development. The HRISD management team has committed to approving the draft for implementation by October 2002. After approval is achieved, HRISD will develop detailed procedures indicating specific steps required to accomplish each phase. The methodology will be tested on selected projects and all appropriate staff will be trained by July 2003. Following this date, the Software Development Methodology will be used in all projects to create, enhance, or maintain HRISD systems

The Methodology consists of the following six phases:

- Requirements analysis.
- Detail design.
- Development.
- Integration testing.
- Acceptance testing.
- Implementation.

The Software Development Methodology will assist project teams to look at software as a delivered solution tied to customers' needs, rather than as specific pieces of code tied to technical tools or capabilities.

5. Application Development Skill Sets

System development tools, processes, and supporting technologies are only valuable to the extent that people are in place with the requisite skill sets to use them. Exhibit F-1 below shows the skill sets available within HRISD staff as of August 2002. It does not incorporate constraints of availability because of current or future assignments. Nor does it restrict the skill sets identified for an individual by current assignment. Therefore, an individual may be counted more than once because of multiple skill sets that individual possesses. Finally, trainees in a particular skill area are counted separately, and identified by an asterisk (*) next to the number for trainees in a skill category.

Not included in this analysis are staff in the categories of Administration (3), Resource Management (2), Network (LAN/Desktop) Support (7), and Production Services (3).

Exhibit F-1: Staff Alignment with Application Development Skill Sets

Skill Area	Staff	Avg. Yrs. Exp.
General:		
Project Management	5	7
Business Analysis / Requirements Development	3 / 2*	15 / .5*
Testing	4 / 1*	5 / .25*
Training	4	4
Help Desk	5	4
Technical Writing / Documentation	0	0
Mainframe:		
System Design / Development	12	12
Systems Architecture	2	8
Database Administration (ADABAS)	3	4
Client/Server and the Web:		
System Design / Development	8	4
Systems Architecture	4	3
Database Administration (SQL Server)	3	4

6. Issues and Limitations.

HRISD managers and staff are aware of the following issues and limitations with regard to current systems and the application development environment. These issues have been divided into three areas: Languages and Development Tools, Project Management and System Development Methods, and Staff Skills and Training.

a. Programming languages and application development tools

- A process and schedule for replacing servers should be established.
- HRISD relies on some software tools (for database access and regression testing) which are not well supported. (Alternative solutions are needed in these areas.) Examples:
 - For database access, HRISD uses an older software tool called ADAPREP. This tool is not well supported; the only support person worldwide lives in Israel. An alternative is needed to provide a link between HRISD's many COBOL programs and its ADABAS database.
 - QABatch is a software tool which assists HRISD with testing in the batch environment. There is currently no vendor support for that tool;

HRISD relies on a local contractor who was the original developer of the tool.

- As mission-critical applications are moved to the web environment, additional backup software and procedures are needed to protect against data loss.
- Additional high capacity servers will be needed as HRISD deploys more mission-critical applications within the client-server / web environment.
- Servers purchased for specific projects need not always be dedicated only to the system developed for that project. Strategies for sharing servers with other projects and applications would save money.

b. Data management

- HRISD lacks experience with VSAM tuning.
- A solution is needed for accessing the mainframe databases (ADABAS, VSAM) for data to be used by web applications. BizTalk is currently being used on a pilot basis to link some web applications with VSAM files on the mainframe.

c. Project management

- DOP and HRISD need an IT Steering Group which formalizes the process for considering, approving, and prioritizing projects initiated by business work groups and external customers.
- The distinction between organizational roles and responsibilities and project roles and responsibilities is sometimes confusing to HRISD staff. This shows up as unexpected interactions (requests) due to multiple people working on multiple concurrent assignments.
- Due to the extreme workload and a chronic shortage of staff, it is necessary for Resource Managers to continually assist staff with prioritizing the various tasks in their workload.
- Technical solutions (new hardware and software) required to satisfy customer needs and legislative mandates increase the support and maintenance burden on staff.
- An agency-wide data model and data dictionary would assist users and technical staff to find data more quickly and to understand the data which is available. It would also improve database design. Strong data design and business (process) modeling practices would improve software design and re-usability. These should be supported by modeling software.
- Continual mandatory deadlines and restricted staffing has not supported the level of documentation needed to manage systems effectively.

- There is a need for consistent rules and practices with regard to how methodologies and standards are applied among projects.
- As it implements a standard system development methodology within HRISD, management is paying special attention to the practice of starting design after requirements are completed, and starting development after design is completed. Expanding scope and meeting project deadlines have been issues previously in managing projects. Sequentially moving from requirements to design to development will reduce the risk of runaway scope and late projects.
- Additional systems or components will be developed for CSR/CB, and parallel systems will be needed in both the mainframe and client/server and web environments while systems are migrating from one platform to the other. Handling support for these systems will be especially challenging given a relatively small maintenance staff for the number of applications requiring support, and the fact that the maintenance demands will increase during 03-05 biennium.

d. Application development skill sets

- There are insufficient staff to cover both mainframe and client-server / web technologies and applications. This is the result of limitations placed on HRISD budget and allocated staff positions. There is no current capacity in the area of technical writing and documentation.
- Making staff time available for training has been difficult because of continual pressures from project schedules and ongoing support and maintenance needs.
- Training is often provided with little or no immediate opportunity to apply the training. A “just in time” approach to training would improve HRISD staff’s ability to gain benefit from the training.

C. Application Maintenance and Support

1. HRISD

Of the sixty-two staff currently employed within the DOP/HRISD organization, eleven provide direct technical support to mainframe applications. Nine of these individuals are working on projects, leaving two staff available to address both emergent and non-emergent requests for system fixes and other system maintenance changes. Because of the minimal resources dedicated to these requests, at this time only emergency requests are actually being worked. The average turnaround time (that is, the number of days a request remains “open” before being completed or “closed”) for these emergency requests is between 2 and 20 days, depending on the system.

There are currently 717 non-emergency requests outstanding. These requests are associated with HRISD system categories as illustrated in Exhibit F-2.

Exhibit F-2: Backlog Requests by System

System	Requests	Percent
Agency Pay/Master	4	1.0
Arms	45	6.0
Biennium	3	0.0
Saving Bonds	4	1.0
Combined Fund Drive	3	0.0
Deferred Compensation	17	2.0
HRISD (Training)	34	5.0
Insurance	15	2.0
Leave	50	7.0
Payroll	299	42.0
Personnel	188	26.0
Retirement Compensation & Contribution Reporting	17	2.0
Tech Support	37	5
Yearend	1	0
Total	717	100

HRISD has instituted a system for handling requests which requires each request to be submitted to the HRISD Help Desk. Once the problem has been verified, a ticket is created and the appropriate Response Team receives the ticket for further analysis to determine impact and priority. If the priority is high, the ticket is then assigned to a staff member to have the work completed. This process is working well, although emergency situations continue to arise.

HRISD management and staff frequently encounter priority and scheduling conflicts. To resolve these conflicts, HRISD has proposed that a committee be formed, composed of representatives of DOP business units as well as HRISD, to prioritize assignments and projects. This will reduce the burden on staff created by continually shifting from one work assignment to another. It will also assist in leveling the workload.

2. DIS

In terms of second-level systems support, Department of Information Services (DIS) provides a flexible level of support, which adjusts the support level to HRISD requirements. On a day-to-day basis, when systems are running smoothly with no

problems, DIS staff is not required to spend time supporting HRISD systems. When HRISD requests assistance to resolve a system problem, anywhere from one to four DIS staff members could be assigned to resolve the problem. During conversions and/or upgrades to new releases of software (CICS, ADABAS, operating system, etc.) anywhere from one to fifteen DIS staff members may be working to support the upgrade for HRISD systems.

3. Service Level Agreements

DOP has executed Service Level Agreements (SLAs) with DIS and the Health Care Authority (HCA). The SLA with DIS covers the levels of system availability and technical support provided by DIS to DOP. The HCA SLA covers the system support services provided by DOP/HRISD to HCA for its Insurance Eligibility and Accounting Systems. DOP also has in place Data Sharing Agreements with the Department of Retirement Systems and the Office of Financial Management.

D. Hardware/Software Environment

1. DIS

The DIS infrastructure is primarily mainframe-centric, having at its core large System/390 mainframes. DIS employs logical partitioning (LPAR) technology on the to provide improved separation and performance. There are 12 partitions or images running the zOS version 1.2 operating system. Images are spread across three (3) S/390 machines. Two are rated at 540 Million Instructions Per Second (MIPS) and one is rated at 260 MIPS; for a total of 1,340 MIPS. Nine images are for Production application use. Three are used for system product testing. One of the images is used solely to run Virtual Telecommunications Access Method (VTAM) and network software. The HRISD workloads run in the VIRA Logical Partition on an IBM 9672-R56 processor.

The storage environment includes EMC Raid level DASD and STK 3480, 3490, and 9840 tape drives. Computer Associates Vtape (virtual tape) software was recently introduced. Almost all of the storage used in the 12 images is shared among all images.

The communications software is SNA & eNetwork Communication server IP 2.6 (same as TCP/IP version 3.5). The network connections used for access to HRISD systems include both SNA and TCP/IP protocols.

There are over 210 system software packages maintained by DIS Workgroups that are used by customer agencies to support their applications. There is also middleware software available to them consisting of MQSeries and EntireX Broker. HRISD applications use Adabas, CICS, Batch, TSO, and VSAM services.

2. HRISD

The preferred operating system for web-based applications is NT 2000. Some servers are currently running NT4; those are being migrated to NT2000. HRISD is also migrating the network to the Active Directory feature of Windows 2000, and expects to complete this process by the end of the 2002 calendar year.

The client/server network consists mainly of Compaq DL 380 dual processor capacity servers. Though server clustering is not currently in use, load balanced blade servers for web services and clustered Compaq G2 DL 380 for SQL services are currently under consideration in order to meet system needs.

E. Network Architecture

1. DIS

There are four major networks supported by DIS for data, video, voice, and education.

a. Video network

The video network is used to handle governmental televised meetings held around Washington State by local, county, and state officials.

b. Voice network

The voice network handles the state Private Branch Exchange (PBX) system, State Controlled Area Network (SCAN) long-distance, Central Exchange (Centrex), and Simon voice messaging systems.

c. K-20 education network

The K-20 education network is used to connect the state school systems together for administrative and educational purposes.

d. Data network

The data network is used to provide connectivity between platforms, servers, and clients through an extensive router-based, frame relay network using Transmission Control Protocol/Internet Protocol (TCP/IP), System Network Architecture (SNA), and Internetwork Packet Exchange (IPX).

2. HRISD

HRISD's network used for web-based applications is linked to a DIS internet node with a 10 megabit connection. Cisco, Bay Networks, and 3Com Routers are used to

link over 20 Compaq servers. A series of firewalls are used to define security regions for “outside” DOP, web servers, SQL (database) servers, and “inside” DOP.

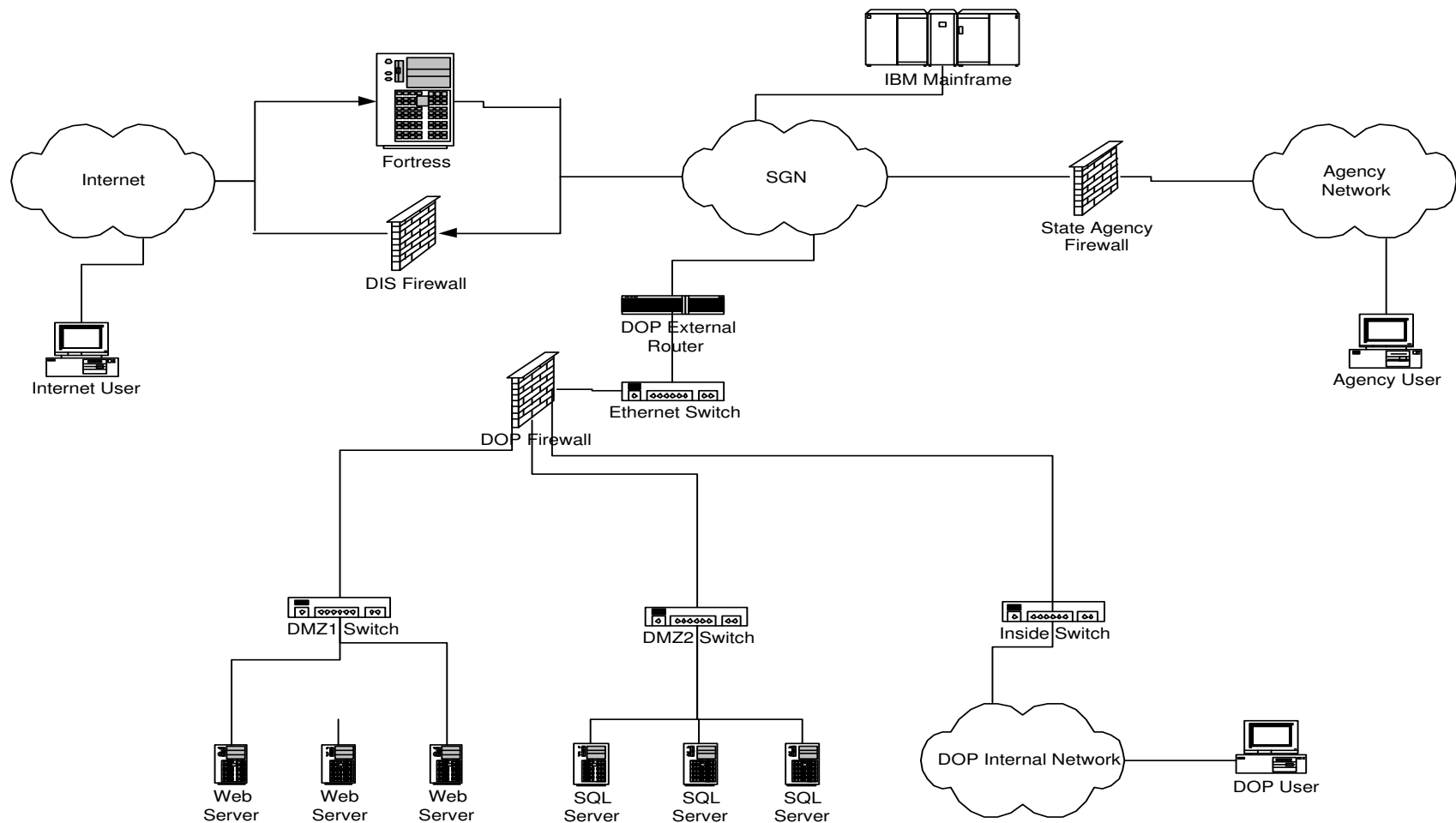
3. Network Diagram

The networking environment within which HRISD operates has the following principal components:

- Networks and internet connections provided by the DIS.
- A set of network nodes, servers, and access controls within which HRISD’s client/server and web operate.

The relationship of these components is illustrated in Exhibit F-3 on the following page.

Exhibit F-3: DIS/HRISD Network Diagram



4. Issues and Limitations

- The current firewalls and network routers within HRISD's client/server and web environments do not include failover capability to backup in failure events. Additional fault tolerance capabilities are needed to improve guaranteed uptime, particularly if additional critical business functions are migrated to the client/server and web environments.
- There is a need for more sophisticated tools for monitoring data demands on the DIS 10 mb connection, and for load balancing. These capacity and load issues may have an impact on meeting new business requirements for Civil Service Reform and Collective Bargaining.
- There are periodic problems getting reports printed on mainframe systems delivered to HRISD customers.

F. Applications Architecture

1. Subsystem Scope

The subsystems designated by HRISD as being within the scope of the feasibility study are listed below.

a. Personnel

- Automatic Salary Increase Conversion.
- Performance Evaluation Due Notification.
- Periodic Salary Increment/Appointment Status Change.
- Personnel Reporting (Activity & Status).
- Automated Register Maintenance System (ARMS/INET)

b. Leave

- Leave/Attendance Reporting.

c. Payroll

- Generic Pay Feed.
- Labor Load (DOT and DOT Marine Division).
- Automatic Warrant Cancellations.
- Payroll Calculations.

- Main Payroll Reporting (JV, Earnings Statement, Warrants).
- Subsequent Payroll Reporting.
- Deduction Reporting.
- AFRS/OST Reporting.
- Biennium Payroll Reporting.
- Year End Wage Reporting (W-2, 1099, SSA).

d. Other

- Data Warehouse

2. Subsystem Dependencies

Subsystem dependencies are illustrated in the Subsystem Context Diagrams and the Subsystem Profiles which follow in this section. The dependencies must be considered when planning the changes required for CSR/CB.

- All subsystems share a single database. This creates a “data dependency” between subsystems. For example, appointment and salary level information created by the Periodic Salary Increment subsystem is used by the Payroll Calculation subsystem to generate correct information for individual paychecks. This also means that changes in data structure required for one subsystem must be reflected in other subsystems.
- There are specific data feeds and “triggers” created by one subsystem to feed another. Payroll Calculations produce payroll information, which triggers Main Payroll Reporting and Deduction Reporting. Main Payroll Reporting provides completed payroll calculations to trigger the Subsequent Payroll Reporting subsystem.
- HRISD reports the human resource systems include 225 interfaces. An interface is defined as a file containing data or commands sent or received by an HRISD system that went to or came from a system external to the HRISD systems. The interface breakdown by category is illustrated in Exhibit F-4.

Exhibit F-4: Interface Breakdown

Category	Interfaces
Supporting state agency-unique HR systems	124
Supporting state agency/organization administrative services	99
Supporting organizations outside the State of Washington	2

The major agency-owned, human resource systems are reported to be operated by the following organizations:

- Employment Security Department.
- Department of Information Services.
- Department of Labor and Industries.
- Department of Licensing.
- Department of Transportation.
- Washington State Patrol.

The HR Cafe implemented by the Department of Labor and Industries appears to have wide appeal. The Department of Licensing has portions of it installed, and the Department of Health and the Department of Retirement Systems are considering acquisition.

3. Subsystem Context Diagrams

To graphically depict the principal information flows between external organizations, systems and users, and each of the subsystems examined here, a series of subsystem context diagrams have been developed. Exhibit F-5 through F-8 on the following pages reflect the user organizations, transactions, and integration points described in the subsystem inventories.

Exhibit F-5: Personnel Subsystems

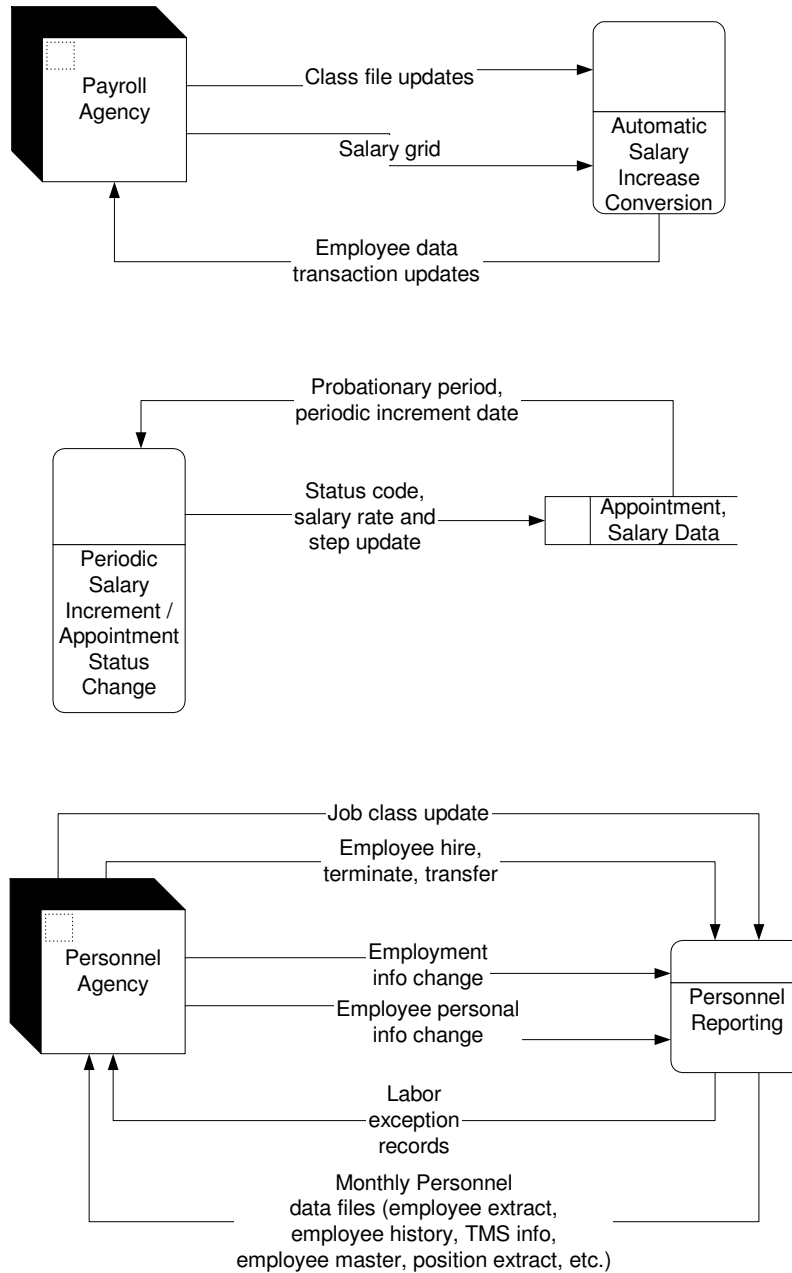


Exhibit F-5: Personnel Subsystems (cont'd)

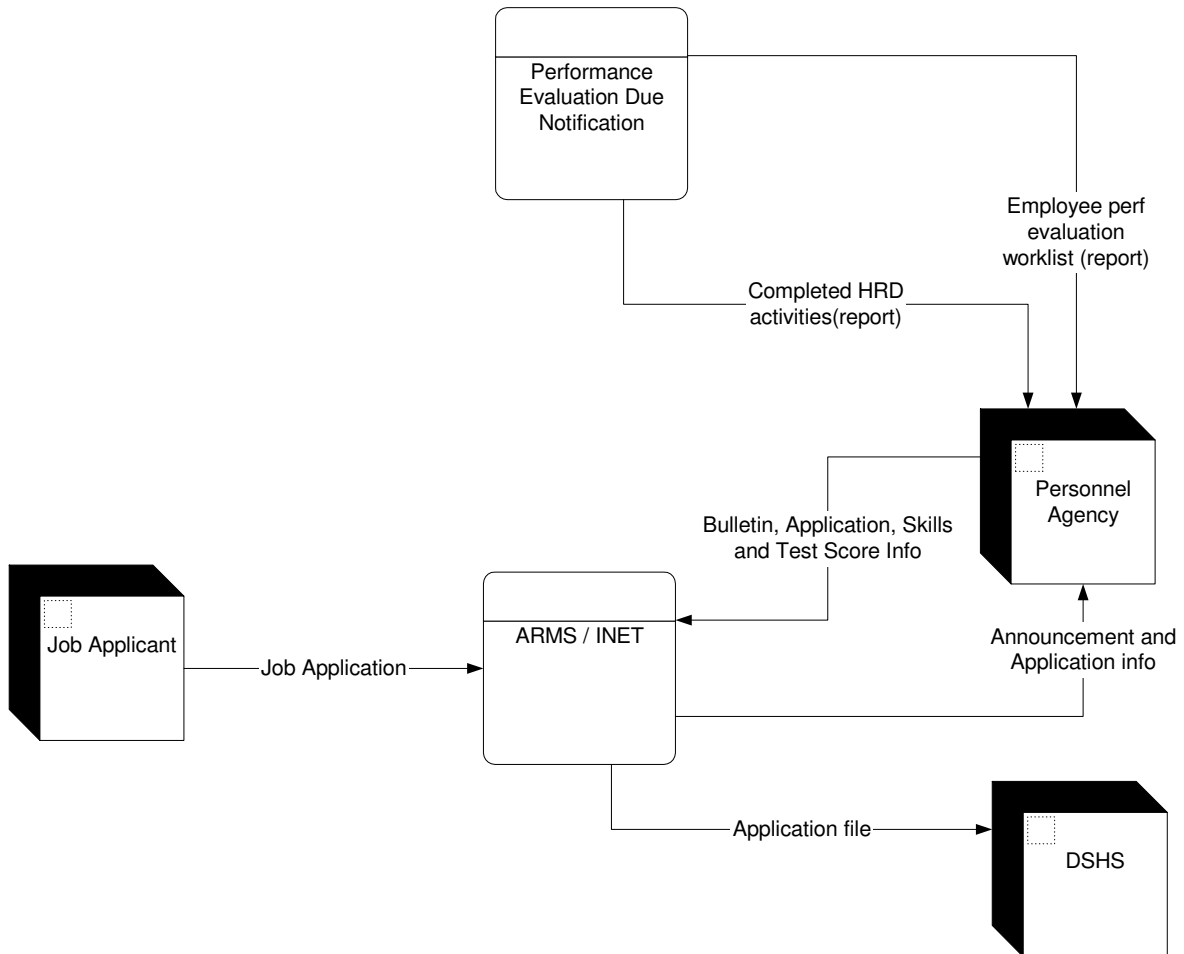


Exhibit F-6: Leave Subsystems

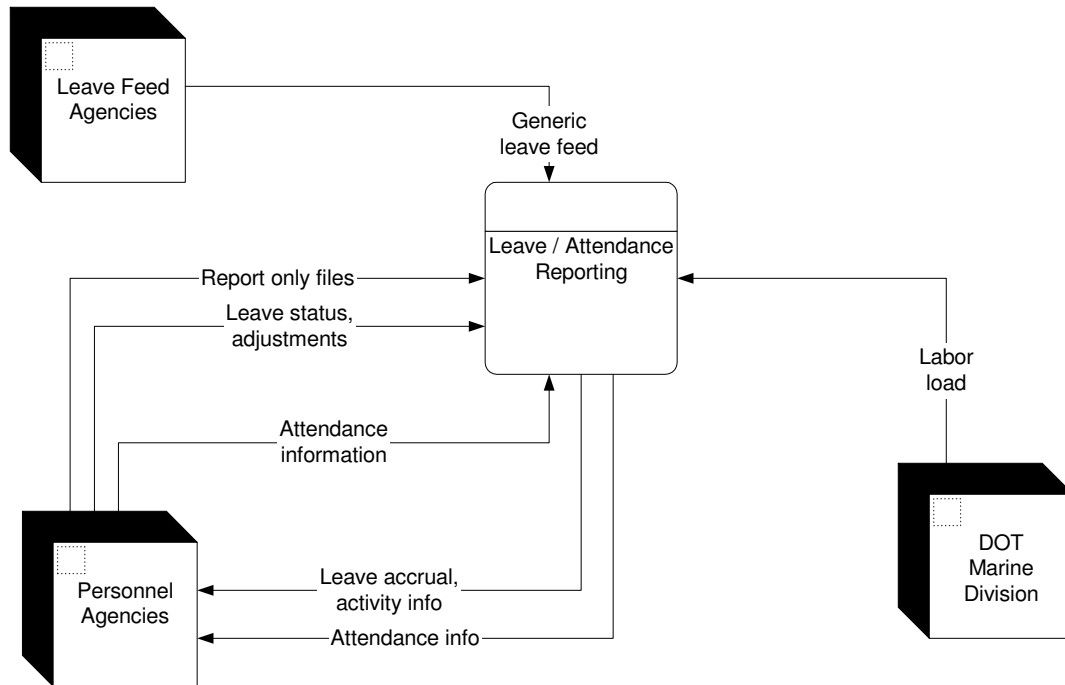


Exhibit F-7: Payroll Subsystems

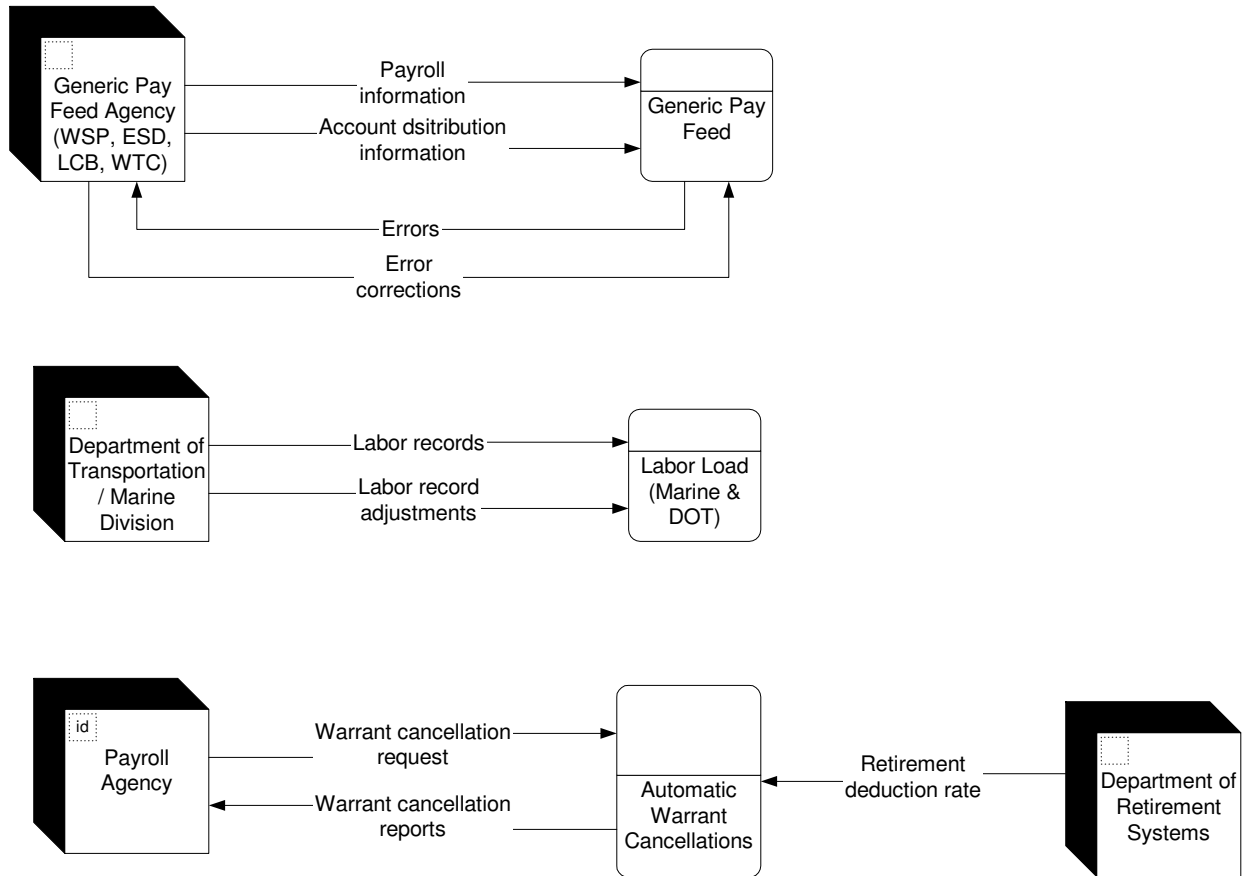


Exhibit F-7: Payroll Subsystems (cont'd)

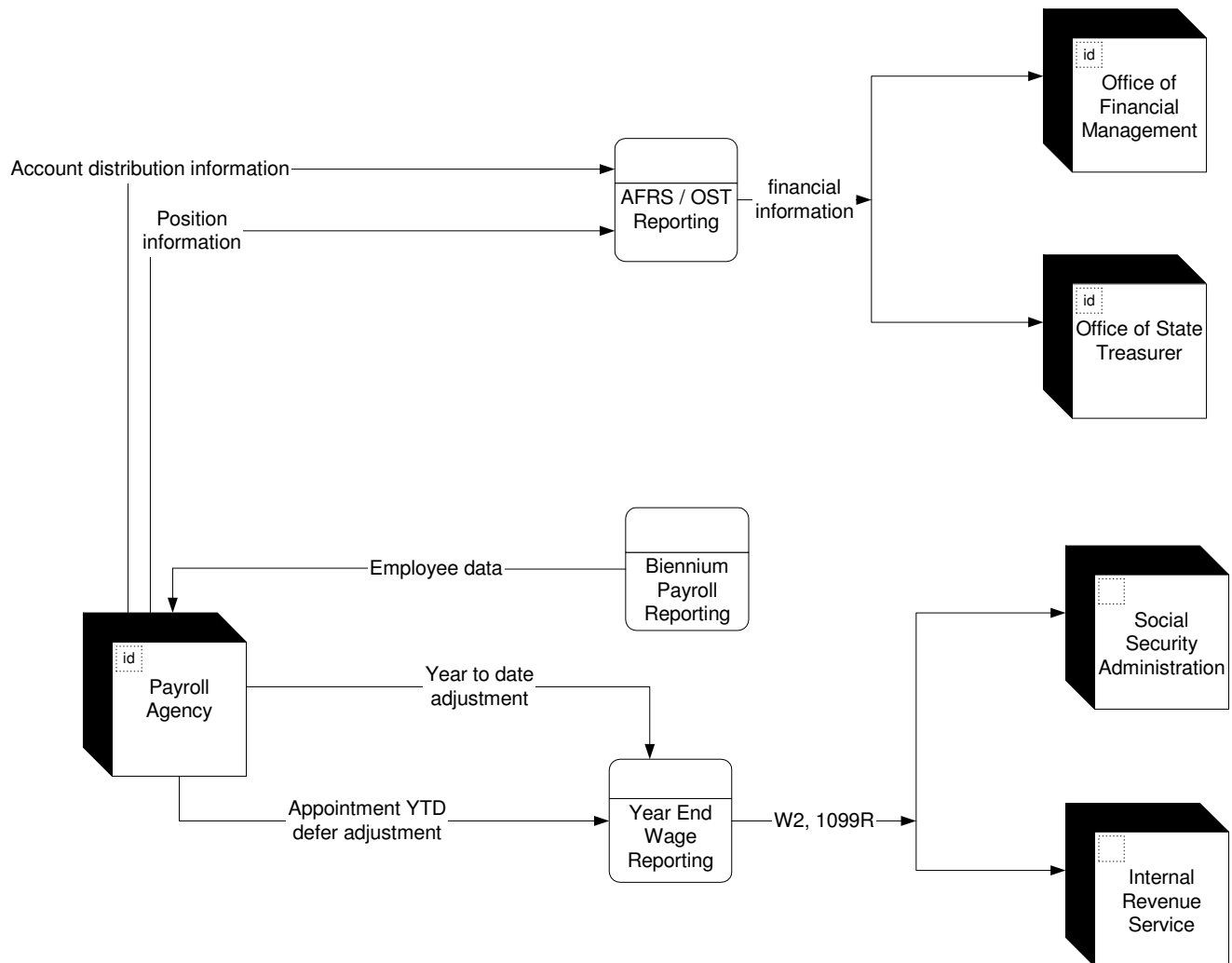
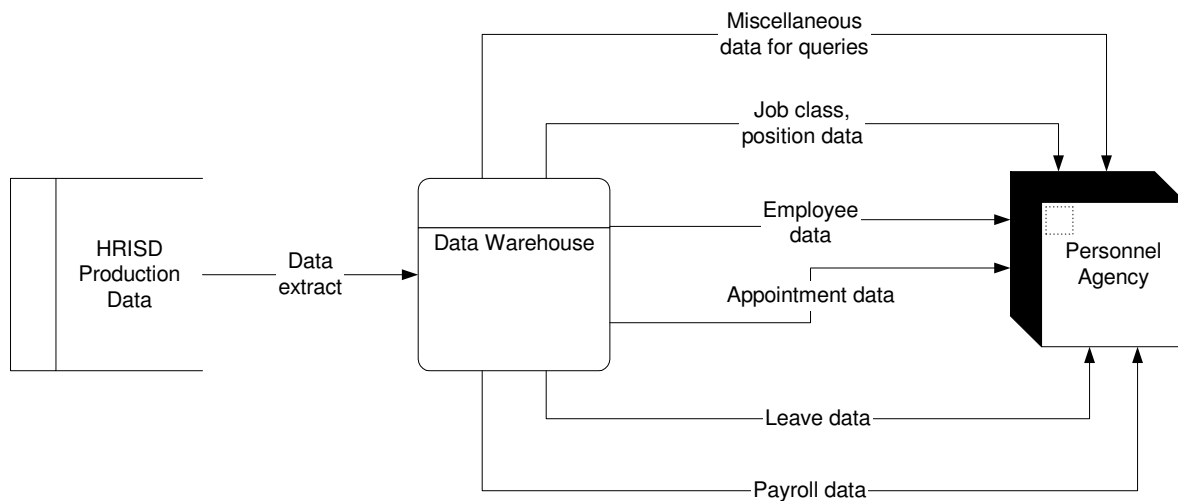


Exhibit F-8: Other Subsystems



4. Subsystem Profiles

Individual subsystem profiles begin on the page following this section. Each profile includes the elements listed below:

a. Name

b. Description

Includes the subsystem objective, its condition, origin, age and frequency of execution.

c. Importance

How critical is the subsystem to the operations of DOP and other state agencies?
Rated as High, Medium, and Low.

d. Functionality

Includes a list of functions performed by the subsystem.

e. Extensibility

The ease with which the subsystem's components can be extended when modifying the application. Rated as High, Medium or Low, where High = easily changed.

f. Users

The organizations that use the subsystem, and how many individuals use it on a regular basis.

g. Transactions

The list of requests for information or other support that users make within the system.

h. Integration points

The list of interface files sent to or received from other organizations outside HRISD.

i. Programming language

The programming language utilized by the subsystem.

j. Data files

The files utilized by the subsystem.

k. Operating system

The operating system utilized by the subsystem.

l. Data base management system

The database management system utilized by the subsystem.

m. Hardware

The hardware platform on which the subsystem is executed.

n. Network

The network services utilized by the subsystem.

o. Reporting

A summary of the reports produced by the subsystem.

p. Potential impact of CSR/CB

Anticipated subsystem impact areas due to CSR/CB.

q. Issues and limitations

Known areas of concern for the subsystem.

5. Automatic Salary Increase Conversion

a. Description

(1) Objective

This subsystem modifies and reports on salary ranges for job classes and increases in salary rates.

(2) Condition of system

The jobs and programs in the subsystem are well structured and easy to maintain. All of the elements need to be viewed to verify they are modularized and meet true structured programming standards.

(3) Origin

The subsystem was written in 1995 by replacing a list of ad hoc jobs in a special library. The management team decided that too much knowledge had been lost in the last few years and the subsystem needed to be a permanent, documented, and standard subsystem.

(4) Age

7 years.

(5) Execution frequency

On-demand, system changes are based on legislative laws and mandates and/or agency requests.

b. Importance level

High.

c. Functionality

- Change salary range for job class.
- Increase salary rates.
- Calculate standby rate.

d. Extensibility

Medium.

e. Operating environment

On-line/Batch.

f. Users

(1) Organizations

- Department of Personnel.
- Department of Transportation.
- Washington State Patrol.
- Office of State Printers.

(2) Individual users

10.

g. Transactions

- B.03 Maintain class file maintenance information.
- Submit batch process when needed to pick up salary grid information created by users.

h. Integration points

Purpose	Source/Destination	Volume	I/O
Get salary grid information from state agencies	Department of Transportation Washington State Patrol Office of State Printers	Unknown	Input
Produces employee reports detailing the changed data elements	Department of Social and Health Services Department of Revenue Employment Security Department Washington State Patrol	Unknown	Output

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- MSTR-TABLES.
- MSTR-CLASS.
- MSTR-POSITION.
- MSTR-APPOINTMENT.

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reports

Various reports are produced for internal audit and control purposes; a “salary non-convert” exception report is distributed to agencies.

p. Potential impact of CSR/CB

- New job class structures affect how salary increases are given.
- Increases may be based on bargaining units.

q. Issues and limitations

- The subsystem is not table driven.
- The agency-input salary grids are created manually in an Excel document. Need on-line input screen to limit error ratio.
- The agency-input salary grids require extraction of data before executing the subsystem.
- Can not increase an individual's step or salary rate. The subsystem updates everyone in that step or salary range.
- Standby rate is not stored in a table.

6. Periodic Salary Increment/Appointment Status Change

a. Description

(1) Objective

The process automatically updates the employee's salary rate and step according to the periodic increment date. It also updates the status codes for the employees reaching the end of their probationary period. A report is generated for all Washington Management Services (WMS) employee records instead of the automatic updating of salary rate and step information.

(2) Condition of system

The jobs and programs in the subsystem are old and are difficult to maintain. A couple of the elements have been rewritten, but others are still non-structured. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

The subsystem was written in 1985 to replace a manual and time consuming process with an automatic process to increment steps, ranges, and status.

(4) Age

17 years.

(5) Execution frequency

Monthly.

b. Importance level

Medium.

c. Functionality

- Extracts periodic and status changes from the on-line database.
- Reports periodic increment and status changes.
- Updates employee history.
- Generates P-2 forms.
- Increase Salary Step within Range.
- Adjust appointment status.
- Adjust permanent status.
- Adjust increment date.
- Reports WMS salary/status notification of review report.
- Reports two month preview of WMS salary/status review notification report.

d. Extensibility

Medium.

e. Operating environment

Batch.

f. Users

(1) Organizations

All agency Payroll sections that are customers of the HRISD Payroll system.

(2) Number of users

425.

g. Transactions

- On a monthly basis, all employees who reach the end of the probationary period have their status codes updated.
- On a monthly basis all employees whose periodic increment date matches the current month have their salary rate and step updated.

h. Integration points

None.

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- MSTR-APPOINTMENT.
- MSTR-PERSON.
- MSTR-POSITION.
- MSTR-CLASS.
- MSTR-TABLES.

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS network.

o. Reports

Produces reports to agencies of periodic salary increments for state employees, and the status and expected increments for WMS employees.

p. Potential impact of CSR/CB

- Salary increase may be based on performance, percentage if classes are broad-banded.
- There may be more salary steps.

q. Issues and limitations

- Programs have hard-coded criteria based on specific steps and ranges.
- Programs have a hard-coded one year salary increase based on increment date.

7. Performance Evaluation Due Notification

a. Description

(1) Objective

This subsystem creates employee evaluation and training profiles.

(2) Condition of system

The jobs and programs in the subsystem are old. Some of the elements have been rewritten to meet new structured design methodologies, but others are still non-structured. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

The subsystem was written in 1977 to meet reporting requirements.

(4) Age

25 years.

(5) Execution frequency

Monthly.

b. Importance level

Medium.

c. Functionality

- Extracts performance due evaluation information.
- Reports performance evaluation work list.
- Extracts training activity for selected employees.
- Reports employee training profiles.

d. Extensibility

Moderate.

e. Operating environment

Batch.

f. Users

(1) Organizations

All agency Personnel sections that are customers of the HRISD Personnel system.

(2) Number of users

425.

g. Transactions

- Regularly scheduled batch processes.

h. Integration points

None.

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- MSTR-APPOINTMENT.
- MSTR-PERSON.
- MSTR-TABLES.
- VSAM-COURSE-TITLES.

k. Operating system

IBM z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS network.

o. Reporting

- Reports individual profiles of completed HRD activities.
- Reports employee performance evaluation work list.

p. Potential impact of CSR/CB

- Can be impacted by bargaining units.

q. Issues and limitations

None.

8. Personnel Reporting

a. Description

(1) Objective

Creates personnel extract files and reports.

(2) Condition of system

The jobs and programs in the subsystem are old and are difficult to maintain. A couple of the elements have been rewritten, but others are still non-structured. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

The subsystem was written in 1976 to report updates to the personnel system.

(4) Age

26 years.

(5) Execution frequency

Monthly.

b. Importance level

Low.

c. Functionality

- Maintain job classifications.
- Maintain positions.
- Record hiring employees.
- Record terminating employees.

- Record movement of employees between agencies.
- Record changes in an employees' employment information.
- Record changes in an employees' personal information.
- Report employment changes for insurance eligible employees to HCA.
- Create end-of-day image of online changes to employee data.
- Create image of employee data when leave changes seniority date.
- Create image of employee data for periodic increment date changes.
- Create image of employee data for salary conversion changes.
- Report changes to customer agencies.

d. Extensibility

Medium.

e. Operating environment

Online/Batch.

f. Users

(1) Organizations

All agency personnel sections that are customers of the HRISD Personnel System.

(2) Number of users

425.

g. Transactions

- A.01 Maintain employees personal information.
- A.02 Maintain employee employment information.
- A.03 Maintain termination and transfer information.
- B.03 Maintain job classification information.
- B.21, B.22 Maintain position information.
- Regularly scheduled batch processes.

h. Integration points

Purpose	Source/Destination	Volume	I/O
Create employee extract files	Department of Health Employment Security Department Washington Utilities and Transportation Commission Washington State Patrol Department of Licensing	Unknown	Output
Create employee history files	Department of Social and Health Services Employment Security Department Department of Fish & Wildlife Department of Revenue	Unknown	Output
Create TMS employee information files	Department of Social and Health Services Washington State Patrol	Unknown	Output
Create employee master files	Department of Social and Health Services Employment Security Department	Unknown	Output
Create position extract files	Department of Social and Health Services Employment Security Department Department of Licensing	Unknown	Output
Create employee summary file	Department of Information Services	Unknown	Output

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- MSTR-APPOINTMENT.
- MSTR-TABLES.
- MSTR-POSITION.
- MSTR-PERSON.
- SEQL-CPM.
- MSTR-CLASS.

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reporting

- Employee, history, and position reports.
- Transaction log.
- Personnel/payroll action document.
- Position action request.

p. Potential impact of CSR/CB

Personnel data broken down by bargaining unit or master contract.

q. Issues and limitations

- The system is old and convoluted.
- The system creates duplicate reports and reports that are not needed or used.
- Programs have hard-coded agencies, codes, etc.

9. Automated Register Maintenance System (ARMS) / INET

a. Description

(1) Objective

The ARMS subsystem allows applicants to apply for a specific classification on a register and State managers to get referrals on a group of applicants. The INET system accepts applications online from the general public or internal state individuals seeking a job.

(2) Condition of system

The jobs and programs in the ARMS subsystem are old. Some of the elements have been rewritten to meet new structured design methodologies. All of the elements need to be more modularized and they need to meet true structured programming standards. The INET code is object oriented methodology followed throughout in a component based, data driven application.

(3) Origin

The ARMS subsystem was written in 1984 to replace a manual index card system. The INET system was written in order to provide better customer service and to reduce costs for DOP.

(4) Age

ARMS – 18 years. INET – 1 year.

(5) Execution frequency

Daily.

b. Importance level

High.

c. Functionality

- Maintain Job Bulletin.
- Maintain Job Application info (relates applicants to bulletins).
- Maintain Skills Matrix.
- Maintain Job Applicants.
- Maintain Referral (match applicants to agency request).
- Maintain testing criteria for scoring.
- Import test scores from external sources (ScanTron).
- Notify applicant of job application status.
- Remove obsolete or expired job applications, bulletins and referrals.
- Merge applicants from two related bulletins into one.
- Compute final score on application for ranking of referrals.
- Maintain Job Applicants (INET).
- Maintain Job Bulletins (INET).
- Maintain Skills Matrix (INET).
- Maintain Job Application info (relates applicants to bulletins) (INET).
- Allow applicant to complete Education & Training test (INET).
- Transmit applicant info to ARMS (INET).

d. Extensibility

ARMS – Moderate. INET – High.

e. Operating environment

ARMS – Batch/Online. INET – Web server / online.

f. Users

(1) Organizations

ARMS – All agency Personnel sections that are customers of the HRISD Personnel system and DOP staff. INET – currently selected individuals from DOP staff and members of the public applying for state jobs.

(2) Number of users

ARMS – 425. INET – 10 to 20 DOP staff; 12,000 job applicants per month.

g. Transactions

- ARMS – Regularly scheduled batch processes.
- INET – Transactions are handled at the component level using COM+ and Distributed Transaction Coordinator (DTC).
- C.11 Bulletin cross reference
- C.12 Bulletin maintenance
- C.13 Bulletin and letter messages
- C.14 Bulletin and application test schedules
- C.15 Score conversion defaults
- C.16 Applicant test schedule
- C.21, C.22, C.23 Application entry
- C.24 Application and class cross reference
- C.25 Application referral information
- C.26 Register and application cross reference
- C.27 Application copy open-competitive to promotional
- C.28 Application skeleton
- C.41 Freeze positions
- C.42 Combine positions
- C.43 Job submittal
- C.51 Referral cross reference
- C.52 Referral maintenance
- C.53 Certifications
- C.54 Referral register check
- C.55 Batch referral request
- C.56 Batch referral

h. Integration points

Purpose	Source/Destination	Volume	I/O
Create Focus: Referral, Applicant Flow, Bulletin, Position, Application and Class files	Administrator for the Courts Washington State Energy Office Attorney General Dept. of Financial Institutions Community Trade & Economic Development Office of Financial Management Dept. of Personnel Washington State Lottery Dept. of Retirement Systems General Administration Dept. of Information Services Liquor Control Board Washington State Patrol Dept. of Labor & Industries Dept. of Licensing Dept. of Social & Health Services – HQ only Dept. of Social & Health Services – Mental Health Division Dept. of Health Dept. of Veterans Affairs Dept. of Corrections Washington State Library Dept. of Transportation – HQ only Dept. of Transportation – WA State Ferries Dept. of Transportation – DOT Ruleset Dept. of Ecology Dept. of Fish & Wildlife Dept. of Natural Resources Dept. of Agriculture Employment Security Dept	Unknown	Output
Create Application file	Dept. of Social & Health Services	Unknown	Output

i. Programming language

- ARMS
- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.
- INET
- Visual Basic and VBScript
- T-SQL
- HTML/DHTML
- JavaScript
- ASP

j. Data files

- MSTR-APPOINTMENT.
- MSTR-PERSON.
- MSTR-TABLES.
- VSAM-COURSE-TITLES.
- MSTR-CLASS
- MSTR-BULLETIN
- MSTR-POSITION
- MSTR-APPLICATION
- MSTR-SUSPENSE
- MSTR-REFERRAL

k. Operating system

ARMS – IBM z/OS. INET – Windows 2000 Server

l. Data base management system

ARMS – ADABAS. INET – SQL Server 2000

m. Hardware

IBM System 390. INET – Compaq DL380 dual Pentium Web server and SQL Server.

n. Network

DIS network. INET – DOP internal network exposed via DIS firewall.

o. Reporting

- Sends letters to applicants about the status of their application.
- Hardcopy of online referral request.
- Report of all daily ARMS on-line activity.
- Report of all combined and frozen positions.
- Report of all name and address for selected applicants per bulletin.
- Reports batch referral suspense records.
- Reports month-end certification statistics.
- Application purge report.

p. Potential impact of CSR/CB

- Will be impacted by the new classifications.

q. Issues and limitations

- Programs have hard-coded criteria for application types and other codes.
- Ranking order is linked to application types.
- The current referral database does not support all of the relationships needed.

10. Leave/Attendance Reporting

a. Description

(1) Objective

This subsystem processes all leave transactions, accumulates accruals, makes adjustments and reports on the changes. Leave/Attendance reporting includes

Lag Leave, Current Leave, Union Leave, On-Line Leave Transactions, Generic Leave Feed, and Report only.

(2) Condition of system

The jobs and programs in the subsystem are old and are difficult to maintain. A couple of the programs have been rewritten, but others are still non-structured. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

The subsystem was written in 1987 to process leave transactions.

(4) Age

15 years.

(5) Execution frequency

Monthly.

b. Importance level

High.

c. Functionality

- Process annual or sick leave buyout.
- Transmit leave data to agencies.
- Adjust personnel data based on leave without pay.
- Receive employee leave data from agencies.
- Collect other earned leave from payroll (comp time, overtime, callback).
- Maintain employees leave balances.
- Process leave taken, paid or lost.
- Track shared leave maximums.
- Calculate leave accruals.

d. Extensibility

Medium.

e. Operating environment

Online/Batch.

f. Users

(1) Organizations

All agency Personnel sections that are customers of the HRISD Personnel System.

(2) Number of users

425.

g. Transactions

- Agency submits leave records to HRISD.
- B.01 Maintain attendance information.
- B.04 Maintain leave adjustment information.
- B.05 Maintain batch leave status information.

h. Integration points

Purpose	Source/Destination	Volume	I/O
To send generic leave information to be processed	Employment Security Department Department of Information Services Senate House of Representatives	Unknown	Input
To send report only information to be reported	Department of Labor & Industries Department of Revenue Department of Licensing Liquor Control Board	Unknown	Input
To send labor load information to be processed	Department of Transportation DOT Marine Division	Unknown	Input

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- MSTR-TABLES.
- MSTR-LABOR.
- MSTR-LEAVE-SUSPENSE.
- MSTR-APPOINTMENT.
- MSTR-POSITION.
- SEQL-LEAVE.
- MSTR-GENERIC-FEED-MSG.
- MSTR-UNION-LABOR.

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reporting

- Leave, leave activity, and leave exception reports.
- Sick leave donation, sick leave paid to date, sick leave activity reports.

- Attendance reports.
- Annual leave reports.

p. Potential impact of CSR/CB

- Change leave benefits based on bargaining.
- Manage leave in “pools” rather than identifying sick, annual, other types of leave.

q. Issues and limitations

- Convolutd, unstructured and unmodularized code makes the system hard to maintain.
- A number of functions are included in this system, which increases its complexity.

11. Generic Pay Feed

a. Description

(1) Objective

This subsystem was designed to provide a generic payroll feed process, which enables agencies to load payroll data into the HRISD payroll system.

(2) Condition of system

The jobs and programs in the subsystem are well-structured and easy to maintain. All of the elements need to be reviewed to verify that all are modularized and meet true structured programming standards.

(3) Origin

The subsystem was written in 1997 to create a generic process for agencies to load payroll data in a batch mode instead of using the payroll screens.

(4) Age

5 years.

(5) Execution frequency

Can run up to 12 times a month.

b. Importance level

High.

c. Functionality

- Function: Receive employee payroll data from agencies.
- Function: Maintain primary payroll and accounting data.
- Function: View error messages.

d. Extensibility

Low.

e. Operating environment

Online/Batch.

f. Users

(1) Organizations

- Washington State Patrol.
- Employment Security Department.
- Liquor Control Board.
- Washington Trade Center.

(2) Number of users

20.

g. Transactions

- Agency process submits payroll records to HRISD.
- A.71, A.72 Maintain primary payroll information.
- A.77 Maintain account distribution information.
- A.79 View generic pay feed error messages.

h. Integration points

Purpose	Source/Destination	Volume	I/O
To load payroll data through a batch mode	Washington State Patrol	1500	Input
	Employment Security Department	2600	Input
	Liquor Control Board	1000	Input
	Washington Trade and Convention	100	Input
Notify agencies of errors from batch payroll load	Washington State Patrol	Unknown	Output
	Employment Security Department	Unknown	Output
	Liquor Control Board	Unknown	Output
	Washington Trade and Convention	Unknown	Output

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- MSTR-PERSON.
- MSTR-APPOINTMENT.
- MSTR-GENERIC-FEED-MSG.
- MSTR-TABLES.
- Stagger-pay (VSAM file).

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reporting

None.

p. Potential impact of CSR/CB

- Additional rates based on bargaining unit.
- Variety of special pay types.
- Feed new rates into system.

q. Issues and limitations

- If network connection is lost, the agency can not submit its payroll file.
- DOP is not notified by the agency if problems occur.

12. Labor Load (DOT & DOT Marine Division)

a. Description

(1) Objective

This subsystem loads the HRISD labor files with labor and leave hours from the DOT and the DOT Marine Division.

(2) Condition of system

The jobs and programs in the subsystem are old and are difficult to maintain. A couple of the elements have been rewritten, but others are still non-structured. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

The subsystem was written in 1987 due to union bargaining requirements.

(4) Age

15 years.

(5) Execution frequency

4 times a month.

b. Importance level

High.

c. Functionality

- Receive employee payroll data from agencies.
- Maintain pay hours.
- Report preliminary calculations.

d. Extensibility

High.

e. Operating environment

Online/Batch.

f. Users

(1) Organizations

- Department of Transportation.
- DOT Marine Division.

(2) Number of users

10.

g. Transactions

- DOT/DOT Marine Division payroll manager submits labor records to HRISD.
- A.17, A.22 Maintain pay hour information.

h. Integration points

Purpose	Source/Destination	Volume	I/O
Load labor and leave hours into HRISD system	Department of Transportation DOT Marine Division	Unknown	Input

i. Programming language

- Language: COBOL.
- Language: JCL.
- Language: DYL260/280.
- IBM Utilities.

j. Data files involved

- MSTR-APPOINTMENT.
- MSTR-LABOR.
- MSTR-CLASS.
- MSTR-UNION-LABOR.
- MSTR-POSITION.
- MSTR-TABLES.
- Stagger-pay VSAM file.

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reporting

- Prints exception and adjustment reports for pay hours, and position-class mismatches; these reports are printed at DOT offices in Seattle.
- Pre-balance report.

p. Potential impact of CSR/CB

Attach new bargaining unit(s) to hours reported.

q. Issues and limitations

- DOT Marine Division is discussing changing from SSN to a different unique key. HRISD system processes using SSN.
- Timely transmission does not always occur.
- Problems are not addressed in a timely manner.
- If network connection is lost, the users can not submit file.

13. Automatic Warrant Cancellations

a. Description

(1) Objective

This subsystem cancels the employee's payroll EFT/warrant. It reduces the employee's year-to-date totals and reverses the mandatory and voluntary deductions taken in the original EFT/warrant. It also reverses the retirement taken.

(2) Condition of system

The jobs and programs in the subsystem are old and are difficult to maintain. A couple of the programs have been rewritten, but others are still non-structured. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

The subsystem was written in 1976 to satisfy a payroll requirement. The automatic process will cancel a warrant that is up to 6 months old.

(4) Age

26 years.

b. Execution frequency

Semi-Monthly, before the first payroll for each cycle.

c. Importance level

High.

d. Functionality

- Process reversed payroll record (warrant cancellations).
- Adjust savings bond reserve balance.
- Adjust year-to-date totals.
- Create reversed payroll record.
- Provide process for agencies to back out warrant/EFT.
- Locate original payroll information for warrant/EFT.
- Reverse retirement deduction rate.
- Report TFB impacts that are unable to be processed.

e. Extensibility

Medium.

f. Operating environment

Online/Batch.

g. Users

(1) Organizations

All agency Payroll sections that are customers of the HRISD Payroll system.

(2) Number of users

425.

h. Transactions

A.13 Process agency requests to cancel a warrant.

i. Integration points

Purpose	Source/Destination	Volume	I/O
Retrieve retirement deduction rate to reverse warrant	Department of Retirement Systems	Unknown	Input

j. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

k. Data files involved

- SEQL-CPM.
- MSTR-TABLES.
- MSTR-APPOINTMENT.
- MSTR-PERSON.
- MSTR-RETIREMENT-SUSPENSE.
- Stagger Pay (VSAM).

l. Operating system

IBM Z/OS.

m. Data base management system

ADABAS.

n. Hardware employed

IBM System 390.

o. Network employed

DIS Network.

p. Reporting

Various warrant cancellation reports are sent to agencies.

q. Potential impact of CSR/CB

Change in payroll calculation.

r. Issues and limitations

- Process does not correctly calculate taxable fringe benefit.
- Recalculates payroll instead of retrieving previously calculated amounts and use those amounts to cancel the warrant.

14. Payroll Calculations

a. Description

(1) Objective

This subsystem provides internal and external vital service support functions for the HRISD batch and on-line processing environments. Calculates and processes payroll data for 120 client agencies resulting in a monthly payroll of \$200 million and 60,000 payments twice a month.

(2) Condition of system

The jobs and programs in the subsystem are old and are difficult to maintain. A couple of the elements have been rewritten, but others are still non-structured. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

- The subsystem was written in 1986 to automatically calculate Net Pay and to pay employees.
- The subsystem was partially rewritten in 1989 to bring on the DOT Marine Division.

(4) Age

16 years.

(5) Execution frequency

Batch will run 6 times a month. Online can be run any day of the month.

b. Importance level

High.

c. Functionality

- Maintain employees payroll record (hours, deductions, allowances, accounting distribution, etc.).
- Maintain work schedules.
- Maintain pay date information.
- Store results of calculations.
- Compute allowances.
- Report computational exceptions to agencies.
- Compute base pay.
- Compute voluntary deductions.
- Compute reimbursements.
- Compute mandatory deductions.
- Compute taxable fringe benefits.
- Accumulate year-to-date totals.
- Calculate retirement deduction from DRS' Rates.
- Provide mechanism for agencies to preview payroll calculations.
- Maintain priority mechanism for deductions.
- Compute gross pay (overtime, allowances, special pay).
- Determine employees to have pay calculated.
- Compute net pay.

d. Overall extensibility

Medium.

e. Operating environment

Online/Batch.

f. Users

(1) User organizations

All agency Payroll sections that are customers of the HRISD Payroll system.

(2) Number of users

425.

g. Transactions

- Regularly scheduled batch process.
- A.01 Person screen.
- A.02 Appointment screen.
- A.03 Terminate / transfer screen.
- A.11 Quick pay screen.
- A.12 Variable earnings.
- A.16 Home agency transfer.
- A.17 Pay hour maintenance.
- A.22 Pay hours maintenance.
- A.31 Gross pre-balance.
- A.32 Net pre-balance.
- A.33 Individual. Net request.
- A.34 Individual view.
- A.71 Payroll.
- A.72 Adjustments to gross.
- A.73 Allowances.

- A.74 Mandatory deductions.
- A.75 Miscellaneous deductions.
- A.76 Voluntary deductions.
- A.77 Account distribution.
- P.31 Pay constants.
- P.32 Miscellaneous deductions.
- P.35 Pay code.
- P.37 Allowances maintenance.

h. Integration points

Purpose	Source/Destination	Volume	I/O
Retrieve retirement deduction rates for each employee	Department of Retirement Systems	120,000	Input

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- SEQL-PEP.
- SEQL-CPM.
- MSTR-TABLES.
- MSTR-INS-TABLES.
- MSTR-CONTROL.
- MSTR-APPOINTMENT.
- MSTR-PERSON.
- MSTR-POSITION.

- MSTR-LABOR.
- MSTR-UNION-LABOR.
- MSTR-CLASS.
- Stagger Pay (VSAM).

k. Operating system

IBM Z/OS.

l. Data base management system.

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reporting

- Payroll Quality Control report.
- Payroll Calculation Exception report.
- Retirement Work List Money report.

p. Potential impact of CSR/CB

- Additional rates based on bargaining unit.
- Variety of special pay types.

q. Issues and limitations

- The payroll extract file (PEP) and the Computed Pay Master file (CPM) have file size issues. They are sequential datasets and they should be database files.
- HCA needs to get the Taxable Fringe Benefit (TFB) rate to DOP in a timely manner.
- Need application/screen to input (TFB) rates.

15. Main Payroll Reporting

a. Description

(1) Objective

This subsystem produces money related payroll files and reports including EFT, warrants, and journal vouchers.

(2) Condition of system

The jobs and programs in the subsystem are old and are difficult to maintain. A couple of the elements have been rewritten, but others are still non-structured. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

The subsystem was written in 1976 to create payroll payments (EFT and warrants) and report the expenditure amount for each payroll to the agencies.

(4) Age

26 years.

(5) Execution frequency

6 times a month.

b. Importance level

High.

c. Functionality

- Create warrants/EFT's for employees and vendors in coordination with DIS and State Treasurer.
- Create agency payroll reports.
- Create vendor payroll reports.
- Create payroll data by account coding assigned to employee / position.
- Create federal tax reporting.
- Assign financial/transaction numbers (warrant register, warrant number, EFT, and ACH).

d. Overall extensibility

Low.

e. Operating environment

Online/Batch.

f. Users

(1) User organizations

All agency Payroll sections that are customers of the HRISD Payroll system.

(2) Number of users

425.

g. Transactions

- Setup person and appointment data.
- Setup payroll related data; allowances and deductions.
- Setup reporting options.
- Payroll information (generated by payroll calculations).
- A.01 Person screen.
- A.02 Appointment screen.
- A.03 Terminate / transfer screen.
- A.11 Quick pay screen.
- A.12 Variable earnings.
- A.16 Home agency transfer.
- A.17 Pay hour maintenance.
- A.22 Pay hours maintenance.
- A.31 Gross pre-balance.
- A.32 Net pre-balance.
- A.33 Individual. Net request.
- A.34 Individual View.

- A.71 Payroll.
- A.72 Adjustments to gross.
- A.73 Allowances.
- A.74 Mandatory deductions.
- A.75 Miscellaneous deductions.
- A.76 Voluntary deductions.
- A.77 Account distribution.
- P.17 Payroll report options.
- P.31 Pay constants.
- P.32 Miscellaneous deductions.
- P.35 Pay code.
- P.37 Allowances maintenance.

h. Integration points

Purpose	Source/Destination	Volume	I/O
To receive warrant numbers	Department of Information Services	Unknown	Input
Retrieves AFRS Fund numbers	Office of Financial Management	Unknown	Input
Retrieves DRS retirement deduction rate	Department of Retirement systems	Unknown	Input
Retrieves ACH information	Office of State Treasurer	Unknown	Input
Sends ACH information	Office of State Treasurer	Unknown	Output

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- MSTR-TABLES.
- SEQL-CPM.
- SEQL-ACCOUNTING.

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reporting

Produces payroll, warrant, deduction, allowance reimbursement registers, journal vouchers, fund report, and other reports for agencies and for the State Treasurer. Some internal reports are produced for HRISD and DOP Accounting. Reports of EFT and ACH transactions and reversals, including employees and retirees, are produced for agencies and the State Treasurer. Prints warrants and generates EFT's.

p. Potential impact of CSR/CB

- Attach master contract information to payroll items, reports.
- Expand earning statement.

q. Issues and limitations

- Manual distribution of payroll reports to agencies make distribution inefficient and prone to error.
- Old, inefficient program code.
- Programs have hard-coded agencies, codes, etc.

16. Subsequent Payroll Reporting

a. Description

(1) Objective

This subsystem creates reports and files for the agencies, creates archival files, and purges old data from permanent files.

(2) Condition of system

The jobs and programs in the subsystem are old and are difficult to maintain. A couple of the elements have been rewritten, but others are still non-structured. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

The subsystem was written in 1976 to produce reports the payroll agencies were requesting.

(4) Age

26 years.

(5) Execution frequency

Monthly and semi-monthly.

b. Importance level

Medium.

c. Functionality

- Create agency payroll reports.
- Create vendor payroll reports.
- Distribute payroll data by account coding assigned to employee/position.
- Transmit/send payroll data to agencies/3rd parties.
- Provide for replacement of damaged or lost warrants.
- Create audit/balancing reports.

- Transfer employer & employee retirement contributions taken to DRS.
- Transfer employee Insurance, DCA, DCP deductions taken to appropriate entities.

d. Extensibility

Medium.

e. Operating environment

Batch.

f. Users

(1) Organizations

All agency Payroll sections that are customers of the HRISD Payroll system.

(2) Number of users

425.

g. Transactions

Payroll information (generated by main payroll reporting).

h. Integration points

Purpose	Source/Destination	Volume	I/O
Miscellaneous deduction files	Department of Transportation DOT Marine Division WFSE WPEA IFPT Local 17 SEIU Local 1199 Department of Fish and Wildlife Department of Social and Health Services Employment Security Department	Unknown	Output
Computed pay file	Department of Natural Resources Employment Security Department Department of State Printer	Unknown	Output
Accounting file	Department of Social and Health Services Department of Labor & Industries Office of Financial Management Office of the State Auditor Superintendent of Public Instruction Washington Utilities and Transportation Commission	Unknown	Output

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- MSTR-TABLES.
- MSTR-CLASS MERIT-CLASS.
- MSTR-CLASS.
- MSTR-APPOINTMENT.
- MSTR-UNION-LABOR.
- MSTR-PERSON.
- SEQL-ACCOUNTING.
- SEQL-CPM.
- MSTR-POSITION.

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reporting

- DOT Marine Division Health and Welfare
- Class distribution.
- MEBA training fund reports.
- Reports to employee unions all employees who terminated or went on/returned from LWOP.
- Report accounting records to Department of Fish and Wildlife.
- Creates DSHS employee location report.
- Employee location and retirement deduction reports.

p. Potential impact of CSR/CB

- Attach bargaining unit, master contract to payroll data.
- New rates of pay.

q. Issues and limitations

- Incorrectly scheduled jobs.
- There are redundant and not used reports in the system.
- Incorrect placement of personnel jobs within a payroll system leads to confusion and wrong impressions.

17. Deduction Reporting

a. Description

(1) Objective

This subsystem produces deduction files and reports for outside entities that need to know deduction data.

(2) Condition of system

The jobs and programs in the subsystem are well-structured and easy to maintain. A few old utilities are still used in the jobs. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

The subsystem was written in 1985 to create files and reports for outside entities that have a deduction code setup in the payroll systems. The outside entity needed to know what dollar amount was taken as a deduction against individual employee earnings.

(4) Age

17 years.

(5) Execution frequency

Semi-Monthly.

b. Importance level

High.

c. Functionality

- Extract deduction information based on criteria.
- Create file and reports of deduction data.
- Add / Change deduction information.

d. Extensibility

Medium.

e. Operating environment

Online/Batch.

f. Users

(1) Organizations

All agency Payroll sections that are customers of the HRISD Payroll system.

(2) Number of users

425.

g. Transactions

- A.75 Maintain payroll miscellaneous deduction information.
- A.76 Maintain payroll transient deduction information.
- P.32 Maintain miscellaneous deduction information.
- Deduction information (generated by payroll calculations).

h. Integration points

Purpose	Source/Destination	Volume	I/O
Extracts and reports all deduction information.	WA Federation of State Employees	222	Output
	Social & Health Federal Credit Union	921	Output
	WA State Employees Credit Union	14910	Output
	Twin County Credit Union	372	Output
	Evergreen Federal Credit Union	Unknown	Output
	Employment Security Credit Union	785	Output
	Columbia Credit Union	78	Output
	Transportation NW Credit Union	628	Output
Extracts deduction information	Colonial Life Insurance Company	Unknown	Output
Creates a file that contains a Miscellaneous Deduction Register for GA parking deductions	Department of General Administration	Unknown	Output
Creates a deduction tape file after Special Payroll	Local Union 17	Unknown	Output
Creates a file & report that contains Child Support deduction information	Department of Social and Health Services – Office of Support Enforcement	1455	Output

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities

j. Data files

- SEQL-CPM.
- MSTR-TABLES.

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reporting

The subsystem reports on deduction code totals, record count totals, and details about the deductions taken.

p. Potential impact of CSR/CB

Union dues collection.

q. Issues and limitations

The system limits the mandatory deduction field to six occurrences.

18. AFRS/OST Reporting

a. Description

(1) Objective

This subsystem transmits financial files and reports to the Office of Financial Management and the Office of State Treasury.

(2) Condition of system

The jobs and programs in the subsystem are old. Some of the elements have been rewritten to meet new structured design methodologies, but others are still non-structured. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

The subsystem was written in 1976 to satisfy OFM/OST accounting requirements.

(4) Age

26 years.

(5) Execution frequency

6 times a month.

b. Importance level

High.

c. Functionality

- Create required AFRS (employees and vendors) information about the EFT/warrant.
- Distribute payroll data by account coding assigned to employee/position.
- Transmit/Send payroll data to agencies/3rd parties.

d. Extensibility

Low.

e. Operating environment

Online/Batch.

f. Users

(1) Organizations

All agency Payroll sections that are customers of the HRISD Payroll system.

(2) Number of users

425.

g. Transactions

- B.21 Maintain position information.
- A.77 Maintain account Distribution information.
- Accounting information (generated by main payroll reporting).

h. Integration points

Purpose	Source/Destination	Volume	I/O
To send financial data (accounting, federal)	Office of Financial Management	60,000	Output
To send financial data (accounting, federal)	Office of State Treasurer	10,500	Output

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- MSTR-TABLES.
- MSTR-INS-TABLES.
- MSTR-APPOINTMENT.
- SEQL-ACCOUNTING.
- SEQL-CPM.

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reporting

- Payroll journal voucher fund summary reports.
- State share insurance journal voucher fund summary report.
- EFT report.
- Retirement journal voucher fund summary report.
- Retiree's EFT report.
- Retiree's federal tax report.
- EFT reversal journal vouchers.

p. Potential impact of CSR/CB

Expand financial coding structure.

q. Issues and limitations

- Timing and communication of data setup between DOP and OFM was incorrect – currently being corrected.
- DOP relies on OFM's system to perform certain functions that do not always happen.
- Agency hard-coding to eliminate certain agency from being sent to OFM (SPI).
- Sub-object codes are hard-coded in programs.

19. Biennium Payroll Reporting

a. Description

(1) Objective

This subsystem changes the biennium designation on warrants, changes the biennium dates on the warrant register, and resets the warrant register numbers and the treasurer transfer number. The process also executes monthly, quarterly, and annual reporting jobs to separate data between biennium's.

(2) Condition of system

The job and programs in the subsystem are old, but well-structured. There has been little modification to the system since originally written. All of the elements need to be modularized and they need to meet true structured programming standards.

(3) Origin

The subsystem was written in 1977 to close out the biennium. With payroll executing two weeks lag, the accumulation files needed to be split correctly between biennium's.

(4) Age

25 year.

(5) Execution frequency

Once every two years.

b. Importance level

High.

c. Functionality

- Create position cost records.
- Update position cost history file.
- Create audit / balancing reports.
- Accumulate year to date totals.

- Provide payroll data for agency requests.
- Transmit/Send payroll data to agencies/3rd parties.

d. Extensibility

Medium.

e. Operating environment

Batch.

f. Users

(1) Organizations

All agency Payroll sections that are customers of the HRISD Payroll system.

(2) Number of users

425.

g. Transactions

Regularly scheduled batch process.

h. Integration points

Purpose	Source/Destination	Volume	I/O
Create Focus employee payroll files	Administrator for the Courts Washington State Energy Office Attorney General Dept. of Financial Institutions Community Trade & Economic Development Office of Financial Management Dept. of Personnel Washington State Lottery Dept. of Retirement Systems General Administration Dept. of Information Services Liquor Control Board Washington State Patrol Dept. of Labor & Industries Dept. of Licensing Dept. of Social & Health Services – HQ only Dept. of Social & Health Services – Mental Health Division Dept. of Health Dept. of Veterans Affairs Dept. of Corrections Washington State Library Dept. of Transportation – HQ only Dept. of Transportation – WA State Ferries Dept. of Transportation – DOT Ruleset Dept. of Ecology Dept. of Fish & Wildlife Dept. of Natural Resources Dept. of Agriculture Employment Security Dept	Unknown	Output

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- MSTR-APPOINTMENT.
- MSTR-PERSON.
- MSTR-TABLES.
- SEQL-CPM.

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reporting

- YTD registers.
- Wage reports.
- Monthly, quarterly and annually position cost reports.
- Out-of-balance reports.

p. Potential impact of CSR/CB

- Attach bargaining unit, master contract to payroll data.
- New rates of pay.

q. Issues and limitations

- Missing Focus job in process.
- Not an automatic process; needs to be manually submitted and monitored.

20. Year End Wage Reporting (W-2; 1099R; SSA)

a. Description

(1) Objective

This subsystem creates W-2 and 1099R information for all state employees based on their federal tax ID'S and reports data to the IRS and SSA.

(2) Condition of system

The jobs and programs in the subsystem have been rewritten and are well-structured and easy to maintain. All of the elements need to be reviewed to verify that all are modularized and meet true structured programming standards.

(3) Origin

The subsystem was rewritten in the late 1980's to meet significant changes in the federal reporting requirements.

(4) Age

25 years.

(5) Execution frequency

Annually.

b. Importance level

High.

c. Functionality

- Determine which employees were paid during the year.
- Determine which employee deductions impacted federal taxes during the year.
- Report W2-related information to agencies.
- Provide mechanism for agencies to adjust year-to-date balances for an employee.
- Produce W2's for employee.
- Transmit SSA mandated federal year end reporting.
- Produce 1099-R for employees.
- Produce IRS mandated reporting.
- Reset year-to-date and related information.
- Archive all year end related data per federal requirements.

d. Extensibility

Medium.

e. Operating environment

Online/Batch.

f. Users

(1) Organizations

All agency Payroll sections that are customers of the HRISD Payroll system.

(2) Number of users

425.

g. Transactions

- A.08 Maintain year-to-date adjustment information.
- A.83 Maintain appointment YTD Defer adjustment information.

h. Integration points:

Purpose	Source/Destination	Volume	I/O
Federal Tax reporting – electronic submission of W-2	Social Security Administration	60,000	Output
Tape submission of 1099R	Internal Revenue Service	Unknown	Output

i. Programming language

- COBOL.
- JCL.
- DYL260/280.
- IBM Utilities.

j. Data files

- MSTR-TABLES.
- MSTR-APPOINTMENT.
- MSTR-PERSON.
- MSTR-INDIVIDUAL.
- MSTR-SUSPENSE.

k. Operating system

IBM Z/OS.

l. Data base management system

ADABAS.

m. Hardware

IBM System 390.

n. Network

DIS Network.

o. Reporting

- Employee year-to-date wages.
- Federal ID number.
- Tax statements.
- Employee tax status for state agencies, the IRS, and the Health Care Administration (HCA).

p. Potential impact of CSR/CB

Taxable fringe benefits.

q. Issues and limitations

DIS/DSHS owns software that is used to send data and timely communication does not always happen.

21. Risk Assessment

a. Subsystems risk assessment matrix

In 2001, a risk assessment was completed as part of a review of the HRISD systems by an outside organization. The risk information pertinent to the feasibility study has been extracted from the previous assessment, validated, and brought up-to-date. Exhibit F-9 on the following page contains the result of this effort in matrix format.

Exhibit F-9: Subsystems Risk Assessment Matrix

Risk Criteria (1 = Low Risk; 5 = High Risk)	Mission Critical	Subsystem Complexity	Subsystem Size (# of Prgrms)	Subsystem Size (lines of code)	5-Year Modification History	Data Access Complexity	Subsystem Age	Integration Factor	Staff Support	Documentation	Reported Problems	Total Raw Score
System/Subsystem												
Personnel												
Automatic Salary Increase Conversion	4	2	2	2	3	1	3	1	4	3	2	27.0
Monthly Personnel Reporting	3	4	5	5	5	5	5	5	3	4	4	48.0
Periodic Salary Increment/ Appointment Status Change	4	2	2	3	2	1	5	1	3	4	3	30.0
Performance Evaluation Due Notification	2	1	1	2	2	1	5	1	2	4	2	23.0
ARMS / INET	3	4	4	4	4	2	5	2	4	4	4	40.0
Average:	3.2	2.6	2.8	3.2	3.2	2.0	4.6	2.0	3.2	3.8	3.0	33.6
Leave												
Leave / Attendance Reporting	4	4	5	4	5	3	5	3	4	3	5	45.0
Average:	4.0	4.0	5.0	4.0	5.0	3.0	5.0	3.0	4.0	3.0	5.0	45.0
Payroll												
Generic Pay Feed	5	4	1	3	2	1	4	1	4	4	2	31.0
Labor Load (DOT and DOT Marine Div.)	5	4	2	3	3	1	5	1	4	4	3	35.0

Risk Criteria (1 = Low Risk; 5 = High Risk)												
System/Subsystem	Mission Critical	Subsystem Complexity	Subsystem Size (# of Prgrms)	Subsystem Size (lines of code)	5-Year Modification History	Data Access Complexity	Subsystem Age	Integration Factor	Staff Support	Documentation	Reported Problems	Total Raw Score
Automatic Warrant Cancellation	1	4	2	3	4	2	5	2	5	4	4	36.0
Payroll Calculations	5	4	2	3	5	2	5	3	4	3	5	41.0
Main Payroll Reporting	5	3	3	4	4	3	5	2	4	4	5	42.0
Subsequent Payroll Reporting	5	4	5	5	5	3	5	3	4	4	5	48.0
Deduction Reporting	5	3	3	4	5	2	5	2	4	4	5	42.0
AFRS / OST Reporting	5	4	3	4	3	2	4	2	4	4	5	40.0
Biennium Payroll Reporting	4	3	2	4	5	2	5	2	4	4	5	40.0
Year End Wage Reporting	1	3	4	4	5	2	5	2	3	2	2	33.0
Average:	4.1	3.6	2.7	3.7	4.1	2.0	4.8	2.0	4.0	3.7	4.1	38.8
Other Systems												
Data Warehouse	2	5	2	2	1	2	3	2	3	3	4	29.0
Average:	2.0	5.0	2.0	2.0	1.0	2.0	3.0	2.0	3.0	3.0	4.0	29.0
Total:	63.0	58.0	48.0	59.0	63.0	35.0	79.0	35.0	63.0	62.0	65.0	630.0

Mission Critical (How long could the agency operate without the use of the subsystem?)

- 1 – More than 30 business days
- 2 – Up to 30 business days
- 3 – 15-29 business days
- 4 – 7-14 business days
- 5 – Up to 3 business days

System Complexity

- 1 – Basic reporting functionality with no external/internal file manipulation.
- 2 – Basic reporting functionality with limited file internal file manipulation.
- 3 – Subsystem supports frequent internal file manipulation.
- 4 – Subsystem supports frequent internal file manipulation and limited external file manipulation processing.
- 5 – Subsystem supports frequent internal and external file manipulation processing.

System Size – Number of Programs

- 1 – Up to 10 programs.
- 2 – 10 - 20 programs.
- 3 – 20 - 30 programs.
- 4 – 30 - 50 programs.
- 5 – More than 50 programs.

System Size – Lines of Code

- 1 – Subsystem support 5,000 Lines of Code.
- 2 – Subsystem supports up to 12,000 Lines of Code.
- 3 – Subsystem supports up to 25, 000 Lines of Code.
- 4 – Subsystem supports up to 50,000 Lines of Code.
- 5 – Subsystem supports over 50, 000 Lines of Code.

5-Year System Modification History

- 1 – No subsystem modifications to date.
- 2 – Up to 10 subsystem historical modifications logged, or less than 5 functional enhancements implemented.
- 3 – Up to 20 subsystem historical modifications logged, or less than 15 functional enhancements implemented.
- 4 – Up to 50 subsystem historical modifications logged, or less than 25 functional enhancements implemented.
- 5 – Over 50 subsystem modifications, or more than 24 functional enhancements implemented.

Data Access Complexity (Number of database/non-database files owned)

- 1 – < 50.
- 2 – 51-200.
- 3 – 201-400.
- 4 – 401-600.
- 5 – > 600.

System Age

- 1 – Subsystem has been operational for less than 2 years.
- 2 – Subsystem has been operational between 2 and 4 years.
- 3 – Subsystem has been operational between 4 and 6 years.
- 4 – Subsystem has been operational between 6 and 8 years.
- 5 – Subsystem has been operational for more than 8 years.

H. Integration Factor (Shared Database and Non-Database Files across Systems/Subsystems)

- 1 – Subsystem accesses 0-10 shared files.
- 2 – Subsystem accesses 11-90 shared files.
- 3 – Subsystem accesses 91-150 shared files.
- 4 – Subsystem accesses 150-250 shared files.
- 5 – Subsystem accesses over 251 shared files.

I. Staff Support Required

- 0 – None
- 1 – Trainee (1 year)
- 2 – Junior (3 years)
- 3 – Journey (5 years)
- 4 – Senior (7 years)
- 5 – Expert (9 years)

Documentation

- 1 – Subsystem has been well and fully documented.
- 2 – Subsystem has been well documented.
- 3 – Subsystem has some documentation.
- 4 – Subsystem has minimum documentation.
- 5 – Subsystem has no documentation.

Reported Problems

- 1 – One problem reported/year.
- 2 – Two – four problems reported/year.
- 3 – Five – eight problems reported/year.
- 4 – Nine – 13 problems reported/year.
- 5 – Over 13 problems reported/year.

b. Risk assessment summary

This assessment of risk factors for subsystems affected by CSR/CB yields some valuable insights into the status of these systems. The total for each risk category (at the bottom of the chart) indicates the more favorable categories to be:

- Data Access Complexity (35)
- Integration Factor (35)
- Subsystem Size – Number of Programs (48)

As evidenced by the totals above, these subsystems have relatively few files that they own, few files they share with other systems, and a medium number of programs. However, the total for the Subsystem Complexity risk category of 58 indicates that the subsystems have a high overall complexity, presumably because the programs are relatively complex and therefore difficult to modify.

High Totals in the areas of Mission Critical (63), 5-Year Modification History (63), Subsystem Age (79), Staff Support (63), Documentation (62) and Reported Problems (65) identify areas in which these subsystems will require extra work and attention as they are modified. Some implications of these totals are:

- Most subsystems must be carefully modified and tested to avoid leaving DOP and other agencies without correct processing by mission critical systems.
- These subsystems have been extensively modified, creating additional difficulty understanding and tracing the subsystem's internal workings before making additional changes.
- Due to the age of the subsystems, expertise in the underlying technology will be increasingly difficult to obtain, and design and programming techniques used to develop them no longer meet industry standards.
- Maintaining and supporting these subsystems requires a high level of experience, including application- and organizational-specific knowledge. This will require significant collaboration between contract developers and HRISD senior staff to accomplish the needed changes.
- Inconsistent to poor documentation will add to the difficulties making the needed changes to these subsystems.
- These subsystems are already plagued with multiple problems. In some areas, they may not be working correctly. This complicates the task for staff brought in to make additional changes.

By examining the Total Raw Score (rightmost column) for each of the subsystems, we can identify those subsystems which will be the most difficult to modify – those with the highest scores. The subsystems with total scores of 40 or above are:

- Monthly Personnel Reporting (48).
- Leave/Attendance Reporting (45).
- Main Payroll Reporting (42).
- Subsequent Payroll Reporting (48).
- Deduction Reporting (42).
- AFRS/OST Reporting (40).
- Biennium Payroll Reporting (40).

22. Issues and Limitations

- The HRISD systems and subsystems are complex, tightly integrated, and difficult to maintain. Much of the program code is unstructured; in addition, all programs tie into a single database which is non-relational. In addition to making each change to a system complex and time-consuming, this creates barriers to completing multiple projects at the same time. For example, any changes made to the system affecting deductions will have ripple effects throughout all subsystems that process deductions. Even though the current architecture document did not consider deduction subsystems, if collective bargaining results in additional deductions being developed, this could affect other systems.
- The HRISD database was designed for efficiency when I/O was expensive; these conditions no longer apply. The database is in need of significant restructuring.
- Though we did not directly consider the ARMS or INET systems, changes in the Personnel system to implement new job class and position structures could have a significant affect on those systems. In order to qualify applicants appropriately for positions, those positions are associated with job classes. If job classes change, that could make it difficult or impossible to automatically qualify and refer applications for consideration by the appropriate hiring manager.